

## Buprenorphine/Naloxone Maintenance Improves Engagement and Quality of HIV Care in HIV-Infected Persons with Opioid Dependence

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### BACKGROUND

Opioid dependent HIV-infected patients are less likely to receive HIV quality of care indicators (QIs) compared with non-dependent patients. Though associated with improved HIV outcomes, treatment of opioid dependence is underutilized. Buprenorphine/naloxone maintenance therapy (BMT) could affect the quality of HIV care for opioid-dependent patients. We assessed the effect of buprenorphine/naloxone maintenance therapy (BMT) on HIV care engagement and quality for opioid dependent patients.

### METHODS

**Design:** Prospective cohort study.

**Setting:** 9 geographically dispersed HIV clinic sites developed models for integrating HIV primary care and BMT for opioid dependence with support from the HRSA SPNS Buprenorphine Integration Initiative. **Participants:** HIV-infected patients with DSM-4 diagnosed opioid dependence; ≥ 18 yrs age; English or Spanish-speaking **Data Collection:** Medical record abstraction 12 months before and after enrollment; patient baseline surveys.

**Measures:**

\*Independent variable: Receipt of BMT at baseline vs. Other opioid dependence treatment (e.g. methadone maintenance/detox)

\*Primary Outcome: Change in Summary Quality Score = number of QIs received ÷ number eligible x 100.

\*Secondary Outcome: Individual QIs from therapeutic (HAART, PCP & MAC prophylaxis, if eligible), monitoring (at least 2 CD4 & HIV RNA per tests and 4 HIV clinic visits per year), screening (hyperlipidemia, syphilis, tuberculosis, and cervical cancer tests in past year), prevention (vaccines for hepatitis A & B, pneumococcus, seasonal influenza), and counseling (IDU, sexual risk reduction counseling during at least 1 visit per year) quality domains

\*Covariates: Gender, race/ethnicity, age, education level, housing status, HIV Symptom Index (20 items), Addiction Severity Index (ASI)-lite drug and alcohol composite scores, opioid of choice, concomitant stimulant, injection drug use, and depression (CES-D).

**Analysis:** We compared change in summary quality score and individual QIs in the year before & after enrollment using t-tests for continuous variables and chi-square tests for categorical data. We estimated the influence of receipt of buprenorphine/naloxone on change in summary quality score from baseline to 12-month follow-up using multivariate GEE linear regression models to adjust for potential confounding variables, and clustering by site. Covariates were included if significant at  $p < 0.20$  in bivariate analysis or *a priori*. Stata/IC version 10.0 (StataCorp, College Station, Texas) was used to complete all statistical analyses.

**Table 3. Multivariate Associations with Change in HIV Quality of Care Summary Score (n=268).**

	$\beta$ Coefficient (95% CI)	p-value
Opioid Dependence Treatment		
Non-Buprenorphine	Referent	0.011
Buprenorphine	8.04 (1.87, 14.2)	
Age (1 year)	0.31 (-0.06, 0.68)	0.099
Gender		
Male	Referent	0.561
Female	1.78 (-4.21, 7.77)	
Race/ethnicity		
White	Referent	0.966
Black	-1.05 (-6.91, 4.81)	
Latino	0.51 (-8.10, 9.13)	
Other	-0.62 (-16.3, 15.1)	

**Table 1. Participant Characteristics at Baseline, Overall and by Opioid Treatment Status (n=268).**

	Overall (n=268)	Buprenorphine (n=194)	Non-Bup (n=74)	p-value†
Mean Age (SD)	45.5 (8.16)	44.8 (8.35)	47.3 (7.40)	.027
Female Gender (%)	93 (34.7)	71 (36.6)	22 (29.7)	.291
Race/ethnicity (%)				.339
White	73 (27)	52 (27)	21 (28)	
Black	138 (52)	95 (50)	43 (58)	
Latino	45 (17)	37 (19)	8 (11)	
Other	10 (4)	8 (4)	2 (3)	
Education (%)				.964
< High School	111 (42)	80 (41)	24 (39)	
High School	99 (37)	70 (37)	24 (39)	
College	57 (21)	43 (22)	13 (22)	
Homeless (%)	74 (28)	52 (27)	22 (30)	.632
Mean HIV Symptom Index (SD)	2.60 (0.79)	2.65 (0.77)	2.47 (0.81)	.106
Mean Depression Score (SD)	2.48 (0.73)	2.51 (0.74)	2.40 (0.70)	.271
Mean ASI-drug (SD)	31.3 (12.8)	31.7 (12.6)	30.2 (13.3)	.383
Mean ASI-alcohol (SD)	7.37 (11.0)	7.80 (11.5)	6.26 (9.41)	.306
Opioid of Choice (%)				<.001
Opioid Analgesics	115 (43)	66 (34)	49 (66)	
Heroin	153 (57)	128 (66)	25 (34)	
Stimulant Use (%)	139 (52)	110 (57)	29 (40)	.012
Injection Drug Use (%)	171 (64)	118 (61)	53 (72)	.100
Mean HIV Visits (SD)‡	6.88 (7.03)	6.49 (6.42)	7.89 (8.39)	.198

† t-test p-value for continuous variables; Chi-square p-value for categorical variables.

‡ Number of HIV Clinic visits during the 12 months prior to baseline enrollment.

**Table 2. HIV Quality of Care Indicators and Summary Score at Baseline and 12 months, by Treatment Status (n=268).**

	Buprenorphine (n=194)					Non-Buprenorphine (n=74)				
	Baseline		12-Months		p-value	Baseline		12-Months		p-value
	No. Eligible	% Received	No. Eligible	% Received		No. Eligible	% Received	No. Eligible	% Received	
Mean Summary Score (SD)	194	45.6 (21.2)	194	51.6 (20.1)	<.001	74	48.6 (20.2)	74	47.8 (23.2)	.788
HAART	141	65	150	67	.434	56	63	61	74	.081
PCP proph	59	66	45	51	.042	18	44	17	65	.198
MAC proph	7	57	9	22	.101	4	75	1	100	n/a
Screening										
Lipids	116	33	131	40	.219	41	46	49	27	.046
Syphilis	194	60	194	51	.036	74	58	74	47	.206
Tuberculosis	168	37	161	25	.013	66	41	64	23	.019
Cervical Cancer	71	38	71	31	.353	21	43	21	71	.083
Prevention										
Hep A Vaccine	118	27	118	35	.003	31	23	31	26	.317
Hep B Vaccine	81	30	81	35	.157	35	29	35	31	1.00
Pneumovax	194	58	194	70	<.001	74	51	74	61	.008
Influenza	194	42	194	40	.666	74	46	74	38	.317
Monitoring										
CD4	194	54	194	79	<.001	74	77	74	62	.028
Viral load	194	55	194	78	<.001	74	70	74	57	.068
≥ 4 HIV Visits	194	60	194	76	<.001	74	66	74	64	.706
Counseling										
IDU Risk reduction	194	27	194	36	.033	74	24	74	47	.002
Sex Risk Reduction	194	24	194	30	.179	74	19	71	36	.009